



wherein each of A<sup>1</sup> and A<sup>2</sup> represents a cyclopentadienyl group, a substituted cyclopentadienyl group, an indenyl group, or a substituted indenyl group; each of Y<sup>1</sup> and Y<sup>2</sup> represents a substituted or unsubstituted alkylene group, a substituted or unsubstituted silylene group, or a germanium-containing group, at least one of Y<sup>1</sup> and Y<sup>2</sup> being a substituted or unsubstituted alkylene group; M represents titanium, zirconium, or hafnium; and each of X<sup>1</sup> and X<sup>2</sup> represents a hydrogen atom, a halogen atom, an alkyl group, an aryl group, an arylalkyl group, an alkylaryl group, an alkoxy group, an aryloxy group, a silicon-containing group, or a sulfur-containing group.

12. (New) The method according to Claim 11, wherein a cyclic olefin and/or a diene is further copolymerized with the  $\alpha$ -olefin and the aromatic vinyl compound.

13. (New) The method according to Claim 11, wherein Y<sup>1</sup> and Y<sup>2</sup> are different from each other.

14. (New) The method according to Claim 11, wherein the copolymerization catalyst further comprises an alkylating agent (C).

15. (New) The method according to Claim 11, wherein the copolymerization is performed in the presence of an additional chain-transfer agent.

16. (New) The method according to Claim 11, wherein the aromatic vinyl compound is styrene.